Title (en)

A STREAMING COMPILER FOR AUTOMATIC ADJOINT DIFFERENTIATION

Title (de)

STREAMING-COMPILER ZUR AUTOMATISCHEN ADJUNGIERTEN DIFFERENZIERUNG

Title (fr)

COMPILATEUR DE DIFFUSION EN CONTINU POUR LA DIFFÉRENCIATION AUTOMATIQUE DES AJOUTS

Publication

EP 3764249 A1 20210113 (EN)

Application

EP 19185052 A 20190708

Priority

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Abstract (en)

A method for operating on a target function to provide computer code instructions configured to implement automatic adjoint differentiation of the target function. The method comprises: determining, based on the target function, a linearized computational map (100), LCM, of the target function wherein each node of the LCM (100) comprises an elementary operation; for each node of the LCM (100) forming computer code instructions configured to: (i) compute intermediate data associated with a forward function of an automatic adjoint differentiation algorithm; and, (ii) increment, according to the automatic adjoint differentiation algorithm, adjoint variables of the preceding connected nodes of the each node in dependence on intermediate data; wherein forming computer code instructions for both step (i) and step (ii) for each node is performed prior to performing said steps for a subsequent node of the LCM (100).

IPC 8 full level

G06F 17/10 (2006.01); **G06F 8/30** (2018.01)

CPC (source: EP US)

G06F 8/443 (2013.01 - US); **G06F 8/4443** (2013.01 - EP); **G06F 17/10** (2013.01 - EP); **G06F 17/17** (2013.01 - US)

Citation (search report)

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- [I] CHRISTIAN H BISCHOF ET AL: "Implementation of automatic differentiation tools", PARTIAL EVALUATION AND SEMANTICS-BASED PROGRAM MANIPULATION, ACM, 2 PENN PLAZA, SUITE 701 NEW YORK NY 10121-0701 USA, 14 January 2002 (2002-01-14), pages 98 - 107, XP058341921, ISBN: 978-1-58113-455-1, DOI: 10.1145/503032.503047
- [I] ZAHRASADAT DASTOURI ET AL: "A MIXED OPERATOR OVERLOADING AND SOURCE TRANSFORMATION APPROACH FOR ADJOINT CFD COMPUTATION", PROCEEDINGS OF THE VII EUROPEAN CONGRESS ON COMPUTATIONAL METHODS IN APPLIED SCIENCES AND ENGINEERING (ECCOMAS CONGRESS 2016), 5 June 2016 (2016-06-05), Athens, pages 4047 - 4060, XP055653192, ISBN: 978-618-82-8440-1, DOI: 10.7712/100016.2091.11263

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

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DOCDB simple family (application)

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